



#9

SEQUENCE LISTING

<110> Delaney, William IV
Locarnini, Stephen Alister
Chen, Robert Yung Ming
Bartholomeusz, Angeline
Isom, Harriet

<120> An assay

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<140> 09/781,891
<141> 2001-02-02

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<170> PatentIn version 3.0

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Xaa Glx Gln Xaa Xaa Xaa Xaa Xaa Xaa Leu His Xaa Xaa Cys Ser Arg
50 55 60

Xaa Leu Tyr Val Ser Leu Xaa Leu Leu Tyr Xaa Thr Xaa Gly Xaa Lys
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Leu His Leu Xaa Xaa His Pro Ile Xaa Leu Gly Phe Arg Lys Xaa Pro
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Met Gly Xaa Gly Leu Ser Pro Phe Leu Leu Ala Gln Phe Thr Ser Ala
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Ile Xaa Xaa Xaa Xaa Xaa Arg Ala Phe Xaa His Cys Xaa Xaa Phe Xaa
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Tyr Met Asp Asp Xaa Val Leu Gly Ala Xaa Xaa Xaa Xaa His Xaa Glu
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Xaa Leu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Leu Xaa Xaa Gly Ile His
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Xaa Ser Trp Trp Thr Ser Leu Xaa Phe Leu Gly Xaa Xaa Xaa Xaa Cys
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Xaa Gly Xaa Xaa Xaa Gln Ser Xaa Xaa Ser Xaa His Xaa Pro Xaa Xaa
50 55 60

Cys Pro Pro Xaa Cys Xaa Gly Tyr Arg Trp Met Cys Leu Xaa Arg Phe
65 70 75 80

Ile Ile Phe Leu Xaa Ile Leu Leu Leu Cys Leu Ile Phe Leu Leu Val
85 90 95

Leu Leu Asp Xaa Gln Gly Met Leu Xaa Val Cys Pro Leu Xaa Pro Xaa
100 105 110

Xaa Xaa Thr Thr Ser Xaa Xaa Xaa Cys Xaa Thr Cys Xaa Xaa Xaa Xaa
115 120 125

Gln Gly Xaa Ser Xaa Xaa Pro Xaa Xaa Cys Cys Xaa Lys Pro Xaa Xaa
130 135 140

Gly Xaa Cys Thr Cys Ile Pro Ile Pro Ser Xaa Trp Ala Xaa Xaa Xaa
145 150 155 160

Xaa Leu Trp Glu Xaa Xaa Ser Xaa Arg Xaa Ser Trp Leu Xaa Leu Leu
165 170 175

Xaa Xaa Phe Val Gln Xaa Xaa Xaa Xaa Leu Xaa Pro Xaa Val Trp Xaa
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Xaa Xaa Ile Trp Xaa Xaa Trp Xaa Trp Xaa Pro Xaa Xaa Xaa Xaa Ile
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Xaa Cys Cys Thr Ala Thr Gly Gly Gly Ala Gly Xaa Gly Gly Gly Cys
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Cys Thr Cys Ala Gly Xaa Cys Cys Gly Thr Thr Thr Cys Thr Cys Xaa
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Gly Thr Thr Cys Gly Xaa Ala Gly Gly Gly Cys Thr Thr Thr Cys Cys
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Cys Cys Cys Ala Cys Thr Gly Thr Xaa Thr Gly Gly Cys Thr Thr Thr
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Cys Ala Gly Xaa Thr Ala Thr Ala Thr Gly Gly Ala Thr Gly Ala Thr
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Gly Thr Gly Gly Thr Xaa Thr Thr Gly Gly Gly Gly Gly Cys Cys Ala
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Ala Gly Thr Cys Thr Gly Thr Ala Cys Ala Xaa Cys Ala Thr Cys Xaa
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 35 40 45

Xaa Ser Arg Xaa Xaa Ile Xaa Xaa Tyr His Gln His Tyr Gly Arg Asp
50 55 60

Xaa Leu His Asp Xaa Ser Tyr Cys Ser Arg Xaa Gln Leu Tyr Val Ser
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Leu Leu Met Leu Leu Tyr Lys Gln Thr Tyr Phe Gly Arg Trp Lys Leu
85 90 95

His Leu Tyr Leu Ser Ala His Pro Ile Ile Val Leu Gly Phe Arg Lys
100 105 110

Ile Leu Pro Met Gly Val Gly Gly Leu Ser Pro Phe Leu Leu Ala Gln
115 120 125

Phe Thr Ser Ala Ile Cys Leu Ala Ser Val Met Val Thr Arg Cys Arg
130 135 140

Ala Phe Phe Pro His Cys Leu Val Ala Val Phe Ser Ala Tyr Met Asp
145 150 155 160

Asp Val Leu Met Val Leu Gly Ala Lys Arg Ser Thr Val Gly Gln Glu
165 170 175

His Leu Ser Arg Glu Ser Phe Leu Phe Tyr Thr Ala Ala Ser Val Ile
180 185 190

Thr Cys Xaa Ser Phe Val Leu Leu Ser Asp Leu Val Gly Ile His Leu
195 200 205

Xaa Pro Xaa Gln Lys Thr Lys Arg Trp Gly Tyr Ser Leu Xaa Phe Met
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Gly Tyr Val Ile Ile Gly
225 230

<210> 9

<211> 426

<212> DNA

<213> HBV

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atttga 426

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<211> 425
<212> DNA
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attta 425

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<211> 426
<212> DNA
<213> HBV

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attcctgctc aaggaacctc tatgtttccc tcttgttggg gtacaaaacc ttcggacgga 180
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atttga 426

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<211> 426
 <212> DNA
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 gcctcagccc gtttctcctg gctcagttta ctagtgccat ttgttcagtg gttcgtaggg 300
 ctttccccca ctgtttggct ttcagttata tggatgatgt ggtattgggg gccaaagtctg 360
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 atttaa 426

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 <212> DNA
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<400> 13
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 actcctgctc aaggaacctc tatgtatccc tctgttggtc gtaccaaacc ttcggacgga 180
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 ctttccccca ctgtttggct ttcagttata tggatgatgt ggtattgggg gccaaagtctg 360
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 atttaa 426

<210> 14
 <211> 426
 <212> DNA
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<400> 14
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 gcctcagccc gtttctcctg gctcagttta ctagtgccat ttgttcagtg gttcgtaggg 300
 ctttccccca ctgtttggct ttcagttata tggatgatgt ggtattgggg gccaaagtctg 360

| | |
|--|-----|
| tacagcatct tgagtccectt tttaccgctg ttaccaattt tcttttgtct ttgggtatac | 420 |
| atttaa | 426 |

<210> 15
 <211> 426
 <212> DNA
 <213> HBV

| | |
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| gtttgtcctc taattccagg atcaacaaca accagtacgg gaccatgcaa aacctgcacg | 120 |
| actcctgctc aaggcaactc tatgtttccc tcatgttgct gtacaaaacc tacggatgga | 180 |
| aattgcacct gtattcccat cccatcgctc tgggctttcg caaaatacct atgggagtgg | 240 |
| gcctcagtcc gtttctcttg gctcagttta ctagtgccat ttgttcagtg gttcgtaggg | 300 |
| ctttccccca ctgtttggct ttcagctata tggatgatgt ggtattgggg gccaaagtctg | 360 |
| tacagcatcg tgagtccectt tataccgctg ttaccaattt tcttttgtct ctgggtatac | 420 |
| atttaa | 426 |

<210> 16
 <211> 426
 <212> DNA
 <213> HBV

| | |
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| gtttgtcctc tacttccagg aacatcaacc accagcacgg gaccatgcaa gacctgcacg | 120 |
| attcctgctc aaggaaactc tatgtttccc tcttggtgct gtacaaaacc ttcggaacgga | 180 |
| aactgcactt gtattcccat cccatcatcc tgggctttcg caagattcct atgggagggg | 240 |
| gcctcagtcc gtttctcctg gctcagttta ctagtgccat ttgttcagtg gttcgtaggg | 300 |
| ctttccccca ctgtttggct ttcagttata tggatgatgt ggtattgggg gccaaagtctg | 360 |
| tacaacatct tgagtccectt tttacctcta ttaccaattt tcttttgtct ttgggtatac | 420 |
| atttga | 426 |

<210> 17
 <211> 426
 <212> DNA
 <213> HBV

| | |
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| gtttgtcctc tacttccagg aacatcaact accagcacgg gaccatgcaa gacctgcacg | 120 |

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| attcctgctc | aaggaacctc | tatgtttccc | tcttgttgct | gtacaaaacc | ttcggacgga | 180 |
| aactgcactt | gtattcccat | cccatcatcc | tgggctttcg | caagattcct | atgggagggg | 240 |
| gcctcagtc | gtttctcctg | gtcagttta | ctagtgccat | ttgttcagtg | gttcgtaggg | 300 |
| ctttccccca | ctgtttggct | ttcagttata | tggatgatgt | ggtattgggg | gccaagtctg | 360 |
| tacaacatct | tgagtcctt | ttacctcta | ttaccaattt | tcttttgtct | ttgggtatac | 420 |
| atttaa | | | | | | 426 |

<210> 18
 <211> 426
 <212> DNA
 <213> HBV

| | | | | | | |
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| atcctgctgc | tatgcctcat | cttcttggtg | gttcttctgg | actatcaagg | tatggtgccc | 60 |
| gtttgtcctc | taattccagg | atcctcaaca | accagcacgg | gaccatgccg | gacctgcatg | 120 |
| actactgctc | aaggaacctc | tatgtatccc | tcctgttgct | gtaccaaacc | ttcggacgga | 180 |
| aattgcacct | gtattcccat | cccatcatcc | tgggctttcg | gaaaattcct | atgggagtgg | 240 |
| gcctcagccc | gtttctcctg | gtcagttta | ctagtgccat | ttgttcagtg | gttcgtaggg | 300 |
| ctttccccca | ctgtttggct | ttcagttata | tggatgatgt | ggtattgggg | gccaagtctg | 360 |
| tacagcatct | tgagtcctt | ttaccgctg | ttaccaattt | tcttttgtct | ttgggtatac | 420 |
| atttaa | | | | | | 426 |

<210> 19
 <211> 426
 <212> DNA
 <213> HBV

| | | | | | | |
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| <400> 19 | | | | | | |
| atcctgctgc | tatgcctcat | cttcttggtg | gttcttctgg | actatcaagg | tatggtgccc | 60 |
| gtttgtcctc | taattccagg | atcttcaacc | accagcacgg | gaccatgcag | gacctgcacg | 120 |
| actcctgctc | aaggcaactc | tatgtatccc | tcctgttgct | gtaccaaacc | ttcggacgga | 180 |
| aattgcacct | gtattcccat | cccatcatct | tgggctttcg | gaaaattcct | atgggagtgg | 240 |
| gcctcagccc | gtttctcctg | gtcagttta | ctagtgccat | ttgttcagtg | gttcgtaggg | 300 |
| ctttccccca | ctgtttggct | ttcagttata | tggatgatgt | ggtattgggg | gccaagtctg | 360 |
| tacagcatct | tgagtcctt | ttaccgctg | ttaccaattt | tcttttgtct | ttgggcatac | 420 |
| atttaa | | | | | | 426 |

<210> 20
 <211> 426
 <212> DNA
 <213> HBV

<400> 20

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| gtttgtcctc | taattccagg | atcatcaacc | accagcacgg | gaccatgcaa | gacctgcaca | 120 |
| actcctgctc | aaggaacctc | tatgtttccc | tcatgttgct | gtacaaaacc | tatggatgga | 180 |
| aactgcacct | gtattcccat | cccatcatct | tgggccttcg | caaaatacct | atgggagtgg | 240 |
| gcctcagtcc | gtttctcttg | gctcagttta | ctagtgccat | ttgttcagtg | gttcgtaggg | 300 |
| ctttccccca | ctgtctggct | ttcagttata | tggatgatgt | ggtattgggg | gccaagtctg | 360 |
| tacaacatct | tgagtccttt | tatgccgctg | ttaccaattt | tcttttgtct | ttgggtatac | 420 |
| atttaa | | | | | | 426 |

<210> 21

<211> 4084

<212> DNA

<213> HBV 1.28 genome

<400> 21

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| gccgaccacg | gggcgcacct | ctctttacgc | ggtctccccg | tctgtgcctt | ctcatctgcc | 120 |
| ggtccgtgtg | cacttcgctt | cacctctgca | cgttgcatgg | agaccaccgt | gaacgccccat | 180 |
| cagatcctgc | ccaaggctct | acataagagg | actcttgga | tcccagcaat | gtcaacgacc | 240 |
| gaccttgagg | cctacttcaa | agactgtgtg | tttaaggact | gggaggagct | gggggaggag | 300 |
| attaggttaa | aggtctttgt | attaggaggc | tgtaggcata | aattggtctg | cgcaccagca | 360 |
| ccatgcaact | ttttcacctc | tgcctaata | tctcttgta | atgtccact | gttcaagcct | 420 |
| ccaagctgtg | ccttgggtgg | ctttggggca | tggacattga | cccttataaa | gaatttggag | 480 |
| ctactgtgga | gttactctcg | tttttgccct | ctgacttctt | tccttccgctc | agagatctcc | 540 |
| tagacaccgc | ctcagctctg | tatcgagaag | ccttagagtc | tcctgagcat | tgctcacctc | 600 |
| accatactgc | actcaggcaa | gccattctct | gctgggggga | attgatgact | ctagctacct | 660 |
| gggtgggtaa | taatttgga | gatccagcat | ccagggatct | agtagtcaat | tatgttaata | 720 |
| ctaactgagg | tttaaagatc | aggcaactat | tgtggtttca | tatatcttgc | cttacttttg | 780 |
| gaagagagac | tgtacttgaa | tatttggctc | ctttcgaggt | gtggattcgc | actcctccag | 840 |
| cctatagacc | accaaagtgc | cctatcttat | caacacttcc | ggaaactact | gttggttagac | 900 |
| gacgggaccg | aggcaggctc | cctagaagaa | gaactccctc | gcctcgagca | cgcagatctc | 960 |
| aatcgccgcg | tgcgagaaga | tctcaatctc | gggaatctca | atgttagtat | tccttggact | 1020 |
| cataagggtg | gaaactttac | ggggctttat | tcctctacag | tacctatctt | taatcctgaa | 1080 |
| tggcaaacctc | cttcccttcc | taagattcat | ttacaagagg | acattattaa | taggtgtcaa | 1140 |
| caatttgtgg | gccctctcac | tgtaaataaa | aagagaagat | tgaaattaat | tatgcctgct | 1200 |
| agattctatc | ctaccacac | taaatatttg | cccttagaca | aaggaattaa | accttattat | 1260 |
| ccagatcagg | tagttaatca | ttacttccaa | accagacatt | atttacatac | tctttggaag | 1320 |
| gctggtattc | tatataagag | ggaaaccaca | cgtagcgcat | cattttgcgg | gtcaccatat | 1380 |
| tcttggaac | aagagctaca | gcatgggagg | ttggtcatca | aaacctcgca | aaggcatggg | 1440 |

| | | | | | | |
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| gacgaatctt | tctgttccca | accctctggg | attctttccc | gatcatcagt | tggaccctgc | 1500 |
| atcggagcc | aactcaaaca | atccagattg | ggacttcaac | cccatcaagg | accactggcc | 1560 |
| agcagccaac | caggtaggag | tgggagcatt | cgggccaggg | ctcaccctc | cacacggcgg | 1620 |
| tattttgggg | tggagccctc | aggctcaggg | catattgacc | acagtgtcaa | caattcctcc | 1680 |
| tctgcctcc | accaatcggc | agtcaggaag | gcagcctact | cccatctctc | cacctctaag | 1740 |
| agacagtcac | cctcaggcca | tgcagtggaa | ttccactgcc | ttccaccaag | ctctgcagga | 1800 |
| tcccagagtc | aggggtctgt | atcttctctg | tgggtggtcc | agttcaggaa | cagtaaacc | 1860 |
| tgtccgaat | attgcctctc | acatctcgtc | aatctccgcg | aggactgggg | accctgtgac | 1920 |
| gaacatggag | aacatcacat | caggattcct | aggaccctg | ctcgtgttac | aggcgggggt | 1980 |
| tttcttggtg | acaagaatcc | tcacaatacc | gcagagtcta | gactcgtggg | ggacttctct | 2040 |
| caattttcta | gggggatctc | cgtgtgtct | tggccaaaat | tgcagtcctc | caacctccaa | 2100 |
| tcaactacca | acctcctgtc | ctccaatttg | tctgtgttat | cgctggatgt | gtctgcggcg | 2160 |
| ttttatcata | ttctcttcca | tctgtctgt | atgcctcatc | ttcttattgg | ttcttctgga | 2220 |
| ttatcaaggt | atgttgcccg | tttgtctct | aattccagga | tcaacaacaa | ccagtacggg | 2280 |
| accatgcaaa | acctgcacga | ctcctgtctc | aggcaactct | atgtttccct | catgttgctg | 2340 |
| tacaaaacct | acggatggaa | attgcacctg | tattcccatc | ccatcgtcct | gggctttcgc | 2400 |
| aaaataccta | tgggagtggg | cctcagtcgg | tttctcttgg | ctcagtttac | tagtgccatt | 2460 |
| tgttcagtgg | ttcgtagggc | tttccccac | tgtttggctt | tcagctatat | ggatgatgtg | 2520 |
| gtattggggg | ccaagtctgt | acagcatcgt | gagtcctctt | ataccgctgt | taccaatttt | 2580 |
| cttttgtctc | tgggtataca | tttaaaccct | aacaaaacaa | aaagatgggg | ttattcccta | 2640 |
| aacttcatgg | gtacataaat | tgggaagttg | ggaactttgc | cacaggatca | tattgtacaa | 2700 |
| aagatcaaac | actgttttag | aaaacttctc | gttaacaggc | ctattgattg | gaaagtatgt | 2760 |
| caaagaattg | tgggtctttt | gggctttgct | gctccattta | cacaatgtgg | atatcctgcc | 2820 |
| ttaatgcctt | tgtatgcatg | tatacaagct | aaacaggctt | tcactttctc | gccaacttac | 2880 |
| aaggcctttc | taagtaaaca | gtacatgaac | ctttaccccg | ttgctcggca | acggcctggg | 2940 |
| ctgtgccaa | tgtttgctga | cgcaaccccc | actggctggg | gcttggccat | aggccatcag | 3000 |
| cgcctgcgtg | gaacctttgt | ggctcctctg | cgcattccata | ctgcggaact | cctagccgct | 3060 |
| tgttttgctc | gcagccggtc | tggagcaaag | ctcatcgga | ctgacaattc | tgtcgtcctc | 3120 |
| tcgcggaaat | atacatcggt | tccatggctg | ctaggctgta | ctgccaaactg | gactcttcgc | 3180 |
| gggacgtcct | ttgtttacgt | ccgctcggcg | ctgaatcccg | cggacgacct | ctcgcggggc | 3240 |
| cgtttgggac | tctctcgtcc | ccttctccgt | ctgccgttcc | agccgaccac | ggggcgcacc | 3300 |
| tctctttacg | cggctctccc | gtctgtgcct | tctcatctgc | cggctccgtgt | gcacttcgct | 3360 |
| tcacctctgc | acgttgcatg | gagaccaccg | tgaacgccc | tcagatcctg | cccaaggctc | 3420 |
| tacataagag | gactcttgga | ctcccagcaa | tgtcaacgac | cgaccttgag | gcctacttca | 3480 |
| aagactgtgt | gtttaaggac | tgggaggagc | tgggggagga | gattagggtta | aaggctcttg | 3540 |
| tattaggagg | ctgtaggcat | aaattgggtc | gcgccaccagc | accatgcaac | tttttcacct | 3600 |
| ctgcctaate | atctcttgta | catgtccac | tgttcaagcc | tccaagctgt | gccttgggtg | 3660 |
| gctttggggc | atggacattg | acccttataa | agaatttgga | gctactgtgg | agttactctc | 3720 |
| gtttttgcct | tctgacttct | ttccttccgt | cagagatctc | ctagacaccg | cctcagctct | 3780 |
| gtatcgagaa | gccttagagt | ctcctgagca | ttgctcacct | caccatactg | cactcaggca | 3840 |
| agccattctc | tgtctggggg | aattgatgac | tctagctacc | tgggtgggta | ataatttgga | 3900 |

| | | | | | | |
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| agatccagca | tccagggatc | tagtagtcaa | ttatgttaat | actaacatgg | gtttaaagat | 3960 |
| caggcaacta | ttgtggtttc | atatatcttg | ccttactttt | ggaagagaga | ctgtacttga | 4020 |
| atatttggtc | tctttcggag | tgtggattcg | cactcctcca | gcctatagac | caccaaatgc | 4080 |
| ccct | | | | | | 4084 |

<210> 22

<211> 4496

<212> DNA

<213> HBV 1.5 genome

<400> 22

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| cgccaactta | caaggccttt | ctaagtaaac | agtacatgaa | cctttacccc | gttgctcggc | 120 |
| aacggcctgg | tctgtgccaa | gtgtttgctg | acgcaacccc | cactggctgg | ggcttgcca | 180 |
| taggcatca | gcgcctgcgt | ggaacctttg | tggtcctct | gccgatccat | actgcggaac | 240 |
| tcttagccgc | ttgttttgct | cgcagccggt | ctggagcaaa | gtcatcggga | actgacaatt | 300 |
| ctgtcgtcct | ctcgcggaaa | tatacatcgt | ttccatggct | gctaggctgt | actgccaaact | 360 |
| ggatccttcg | cgggacgtcc | tttgtttacg | tcccgtcggc | gctgaatccc | gcggacgacc | 420 |
| cctcgcgggg | ccgcttgga | ctctctcgtc | cccttctccg | tctgccgttc | cagccgacca | 480 |
| cggggcgcac | ctctctttac | gcggtctccc | cgtctgtgcc | ttctcatctg | ccggtccgtg | 540 |
| tgcacttcgc | ttcacctctg | cacgttgcat | ggagaccacc | gtgaacgccc | atcagatcct | 600 |
| gccaagggtc | ttacataaga | ggactccttg | actcccagca | atgtcaacga | ccgaccttga | 660 |
| ggcctacttc | aaagactgtg | tgtttaagga | ctgggaggag | ctgggggagg | agattagggt | 720 |
| aaagggtctt | gtattaggag | gctgtaggca | taaattgggt | tgcgaccag | caccatgcaa | 780 |
| ctttttcacc | tctgccta | catctcttgt | acatgtccca | ctgttcaagc | ctccaagctg | 840 |
| tgccttggtt | ggctttgggg | catggacatt | gacccttata | aagaatttgg | agctactgtg | 900 |
| gagttactct | cgtttttgcc | ttctgacttc | tttcttccg | tcagagatct | cctagacacc | 960 |
| gcctcagctc | tgtatcgaga | agccttagag | tctcctgagc | attgctcacc | tcaccatact | 1020 |
| gcactcaggc | aagccattct | ctgctggggg | gaattgatga | ctctagctac | ctgggtgggt | 1080 |
| aataatttgg | aagatccagc | atccagggat | ctagtagtca | attatgttaa | tactaacatg | 1140 |
| ggtttaaaga | tcaggcaact | attgtgggtt | catatatctt | gccttacttt | tggaagagag | 1200 |
| actgtacttg | aatatttggg | ctctttcggg | gtgtggattc | gcactcctcc | agcctataga | 1260 |
| ccaccaa | atcttctt | atcaacactt | ccggaaacta | ctgttggttag | acgacgggac | 1320 |
| cgaggcaggt | cccctagaag | aagaactccc | tcgcctcgca | gacgcagatc | tcaatcgccg | 1380 |
| cgtcgcagaa | gatctcaatc | tcgggaatct | caatgttagt | attccttgga | ctcataaggt | 1440 |
| gggaaacttt | acggggcttt | attcctctac | agtacctatc | tttaatcctg | aatggcaa | 1500 |
| tccttccttt | cctaagattc | atttacaaga | ggacattatt | aatagggtgt | aacaatttgt | 1560 |
| gggccctctc | actgtaaatg | aaaagagaag | attgaaatta | attatgcctg | ctagattcta | 1620 |
| tcctacccac | actaaatatt | tgcccttaga | caaaggaatt | aaaccttatt | atccagatca | 1680 |
| ggtagttaat | cattacttcc | aaaccagaca | ttattttacat | actctttgga | aggctgggat | 1740 |
| tctatataag | agggaaacca | cacgtagcgc | atcattttgc | gggtcaccat | attcttggga | 1800 |

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|------------|------------|-------------|------------|-------------|------------|------|
| acaagagcta | cagcatggga | ggttgggtcat | caaaacctcg | caaaggcatg | gggacgaatc | 1860 |
| tttctgttcc | caacctctcg | ggattctttc | ccgatcatca | gttggaccct | gcattcggag | 1920 |
| ccaactcaaa | caatccagat | tgggacttca | accccatcaa | ggaccactgg | ccagcagcca | 1980 |
| accaggtagg | agtgggagca | ttcgggccag | ggctcacccc | tccacacggc | ggtatttttg | 2040 |
| ggtggagccc | tcaggtcag | ggcatattga | ccacagtgtc | aacaattcct | cctcctgcct | 2100 |
| ccaccaatcg | gcagtcagga | aggcagccta | ctcccatctc | tccacctcta | agagacagtc | 2160 |
| atcctcaggc | catgcagtgg | aattccactg | ccttccacca | agctctgcag | gatcccagag | 2220 |
| tcaggggtct | gtatcttcct | gctggtggct | ccagttcagg | aacagtaaac | cctgctccga | 2280 |
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| agaacatcac | atcaggattc | ctaggacccc | tgctcgtgtt | acaggcgggg | tttttcttgt | 2400 |
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| tattcctctt | catectgctg | ctatgcctca | tcttcttatt | ggttcttctg | gattatcaag | 2640 |
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| aaacctgcac | gactcctgct | caaggcaact | ctatgtttcc | ctcatgttgc | tgtacaaaac | 2760 |
| ctacggatgg | aaattgcacc | tgtattccca | tcccatcgtc | ctgggctttc | gcaaaatacc | 2820 |
| tatgggagtg | ggcctcagtc | cgtttctctt | ggctcagttt | actagtgcc | tttgttcagt | 2880 |
| ggttcgtagg | gctttccccc | actgtttggc | tttcagctat | atggatgatg | tggatttggg | 2940 |
| ggccaagtct | gtacagcatc | gtgagtcctt | ttataccgct | gttaccaatt | ttcttttgtc | 3000 |
| tctgggtata | cattttaaac | ctaacaaaac | aaaaagatgg | ggttattccc | taaacttcat | 3060 |
| gggctacata | attggaagtt | ggggaacttt | gccacaggat | catattgtac | aaaagatcaa | 3120 |
| acactgtttt | agaaaacttc | ctgttaacag | gcctattgat | tggaaagtat | gtcaaagaat | 3180 |
| tgtgggtctt | ttgggctttg | ctgctccatt | tacacaatgt | ggatatcctg | ccttaatgcc | 3240 |
| tttgtatgca | tgtatacaag | ctaaacaggc | tttcactttc | tcgccaaactt | acaaggcctt | 3300 |
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| ctttgtttac | gtcccgtcgg | cgctgaatcc | cgcgacgac | ccctcgcggg | gccgcttggg | 3660 |
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| cgcggtctcc | ccgtctgtgc | cttctcatct | gccggctcgt | gtgcacttcg | cttcacctct | 3780 |
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| aggactcttg | gactcccagc | aatgtcaacg | accgaccttg | aggcctactt | caaagactgt | 3900 |
| gtgtttaagg | actgggagga | gctgggggag | gagattaggt | taaaggctctt | tgtattagga | 3960 |
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| tcactctctg | tacatgtccc | actgttcaag | cctccaagct | gtgccttggg | tggctttggg | 4080 |
| gcatggacat | tgacccttat | aaagaatttg | gagctactgt | ggagttactc | tcgtttttgc | 4140 |
| cttctgactt | ctttccttcc | gtcagagatc | tcctagacac | cgctcagct | ctgtatcgag | 4200 |
| aagccttaga | gtctcctgag | cattgctcac | ctcaccatac | tgcactcagg | caagccattc | 4260 |

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|------------|------------|------------|------------|------------|------------|------|
| tctgctgggg | ggaattgatg | actctagcta | cctgggtggg | taataatttg | gaagatccag | 4320 |
| catccagga | tctagtagtc | aattatgtta | atactaaca | gggtttaaag | atcaggcaac | 4380 |
| tattgtgggt | tcatatatct | tccttactt | ttggaagaga | gactgtactt | gaatatttgg | 4440 |
| tctctttcgg | agtgtggatt | cgcactcctc | cagcctatag | accaccaa | gccct | 4496 |